Part 2

Exercise 7 :

Cu block is at 130°C, amount of heat evolved by Cu block to surrounding is 340 J. Temperature of surrounding is 32°C. Then calculate

1. Entropy change for the reaction
2. Entropy change for the surrounding
3. Total entropy change

Assuming that temperature of system and surround remain same

Exrecise 8:

A kilogram of ice taken out of the refrigerator at -5 ° C, is transported in a room at 25°C. He puts himself in balance. Calculate the created entropy.

We give: $\Delta H°fusion, 273K (H_2O, s) = 334 J.g^{-1}$; The specific mass heats are: Cp $(H_2O, l) = 18 J.g^{-1}.K^{-1}$; Cp $(H_2O, s) = 9 J.g^{-1}.K^{-1}$

Exercise 9:

a. Determine the value of while reversibly heating 5 moles of an ideal gas from 25 °C to 73 °C at constant volume.
b. 1 Mole of ideal gas expanded reversibly and isothermally from 1 lit to 10 lit. then find out the entropy change in cal/Kelvin.
c. 2 mole of ideal gas is expanded reversibly and isothermally from 1 lit to 10 lit at 127°C. Then find out the free energy change in cal

Exercise 10 :

Gases ΔG°f (Cal/mole)

CO = –32.80 ; H_2O = –54.69 ; CO_2 = –94.26 ; H_2 = 0

Estimate the standard free energy change in the chemical reaction.

$CO + H_2O \longrightarrow CO_2 + H_2$

Exercice 11.

1. Calculate the standard free abdomen at 25°C (ΔG°) of the following reaction :

$N_2(g) + O_2(g) \longrightarrow 2\ NO\ (g)$

Knowing that : s°298 (N°, g) = 50.34 energy efficiency units; s° 298 (N2, g) = 45.77 energy efficiency units.

s°298 (O2, g) = 49.00 energy efficiency units; Δhf°,298 (NO, g) = 21.6 calories.mol-1

(Unit of entropy: u. e = cal.mol-1.C-1)